Name:				
Enrolment No:		UNIVERSITY WITH A PURPOSE		
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES				
End Semester Examination, December 2020				
Course: Genetics and Epigenetics Semester: III				
Program: B.Sc. (Food, Nutrition and Dietetics) Time: 03 hrs.		NO		
Course Code: HSCC2003Max. Marks: 100Instructions: All the sections are compulsory.				
monucio		TION A		
1. Each Question will carry 5 Marks				
		nks Questions. Answers all the 6 questions.		
S. No.	Que	estions	СО	
0.1				
Q 1	In 1866, Walter Sutton and Theodore Boveri discovered independent assortment of traits, dominant and recessive expression. Traits appear in pairs; separate independently in the gametes; recombine in pairs, in offspring. (Today we know Mendel only studied unlinked traits: on separate chromosomes, or so far apart that crossover frequency approached 50%). (True or false)			
Q 2	• • • • •	redominantly at CpG dinucleotide sequence. e phosphodiester bond linking cytosine- and false)	CO1	
Q 3	The mechanism by which a cell directs a	gene to make a certain protein is called.	CO3	
	a. Gene expression.	b. DNA extraction.		
	c. Chromosome assembly	d. Genetic modification.		
Q 4	Which is known to be methylated in eukaryotic cells? CO			
	a. Adenin	b. Guanine		
	c. Cytosine	d. Thymine		
0.5			000	
Q 5	Test Cross: It is to find out the genotype o plant is crossed with the recessive homoz	f the plant showing dominant trait, the given ygote. The two observations are	CO2	
Q 6	Polygenic Inheritance- When a trait is gov genes	verned by multiple independent	CO2	
SECTION B				
-	estion will carry 10 marks. Answer all 5 tion: Write short / brief notes	questions.		
Q 7	In Mendel's experiments: Justify the reasonal plant as a sample.	on behind the selection of the garden pea	CO1	
Q 8	Explain the DNA mutation. What are the mutation and Frameshift mutation with ex		CO2	

Q 9	What is Pedigree Analysis. Explain Colour blindness and Haemophilia.	CO2		
Q 10	Briefly describe chromatin, chromatid and nucleosome architecture. Explain the DNA methylation and histone modification.	CO3		
Q 11	Explain the polycomb repression and role of drug used in histone modification and treatment of disease.	CO4		
SECTION C				
1. Each question will carry 20 marks. Answer any one question out of three questions.				
2. Instruction: Long Answer type questions				
Q 12	Explain in details DNA transcription in eukaryotes. What is major difference between DNA transcription in eukaryotes and prokaryotes.	CO3		
Q 13	Explain in details RNA silencing and types of RNA silencing. Explain in details RNA interference (RNAi) such as miRNA and siRNA based silencing mechanism.	CO4		
Q 14	Explain the in details Mendals's Law of Dominance, Segregation and Independent Assortment.	CO1		